REMARKS

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested. Claims 1 – 26 and 28-50 are pending in the application, claim 27 is canceled, and claim 51 is added to the application.

CLAIM REJECTIONS – 35 USC § 102 & 103

The Examiner rejects claims 25-26, and 32 under 35 U.S.C. 102(e) as being anticipated by Simons at al. U.S. Patent No. 6,320,595.

The Examiner rejects claims 1-8, 10-11, 13-15, 28-29, 31 and 46 under U.S.C. 103(a) as being unpatentable over Simons at al. U.S. Patent No. 6,320,595, in view of Deering U.S. Patent No. 6,525,722. The Examiner rejects claim 12 under U.S.C. 103(a) as being unpatentable over Deering in view of Simons and Go (US Patent No. 6,101,277). The Examiner further rejects claims 16-23, 30, and 43-45 under U.S.C. 103(a) as being unpatentable over Deering in view of Simons and Kono (US Patent No. 4,772,947).

The present invention teaches, as described in the field of invention section, a novel and inventive apparatus and method for compression/decompression of *arbitrary* graphical information, for example, for transmission over a computer network.

Simons at. U.S. Patent No. 6,320,595 relates, as described in the field of invention section, to the formation, manipulation and coding of graphical images and particularly, but not exclusively to the coding of graphic objects for transmission to and/or from hand held or mobile devices.

Deering U.S. Patent No. 6,525,722, as described in the field of invention section relates to compressing and decompressing three dimensional data, corresponding to regularly and irregularly tiled surface portions of graphical objects.

Kono US Patent No. 4,772,947, as descried in its field of invention section, relates to a method and an apparatus whereby video data is compressed prior to being transmitted

Favorable reconsideration of this rejection in view of the above amendments and the following explanations is respectfully requested.

Claim 1 defines a graphical data-compressor for compression of received, *arbitrary graphical data* for subsequent transmission, the graphical data-compressor comprising: an input for reception of the received arbitrary graphical data, *an analyzer* linked to the input and *operable for analysis of the received arbitrary graphical data into constituent geometrical parts*, where at least some of the constituent geometric parts comprise predetermined shapes and forms, a scene describer, linked to the analyzer for description of the at least some of the constituent geometrical parts as a procedural description of the received arbitrary graphical data, where the procedural description comprises a high level functional form representing one of the constituent geometrical parts, and a transmitter linked to the procedural scene describer for transmission of the procedural description.

The present application teaches the novel and inventive idea, as defined in this claim, of a graphical data-compressor for compression of received *arbitrary* graphical data, utilizing an analyzer for the analysis of the arbitrary graphical data into constituent geometrical parts which are described using a high level functional form. That is to say, with the present invention, *arbitrary* graphical data - data which is not limited

to a predefined set of graphical parts, is analyzed into constituent geometrical parts, comprising predetermined shapes and forms, described using a high level functional form representation and transmitted in this compressed form.

Simon U.S. Patent No. 6,320,595 discloses a technique for generating and coding images, for transmission to hand held or mobile devices. With Simon, the images are composed from a limited set of predetermined components, as described in the summary of invention section: "In accordance with a first aspect of the present invention there is provided a method for generating and coding for transmission a graphic image, comprising the steps of: *composing the image from a plurality of component objects from a predetermined set of object types*, the composition including scaling and locating of each object within a fixed coordinate set image field, generating an ordered rendering list identifying the order in which the component objects are to be rendered on regeneration of the image, sequentially coding each object of the list as a first data word identifying the object type and one or more further words specifying coordinates for said object.". Thus Simon fails to teach or even hint at a method or apparatus, as taught by the present invention, wherein *arbitrary* graphical data, which is not limited to any predetermined set of components is compressed as taught by the present invention.

Deering, as noted by the Examiner on page 5 of the Office Action, does not disclose an analyzer for the analysis of *arbitrary* graphical data into constituent parts, where at least some of the parts comprise predetermined shapes and forms, as taught by the present invention. Thus Deering also falls short of teaching or even hinting at such a graphical data compressor, as taught by the present invention.

It is thus respectfully believed that claim 1 as previously presented is both novel and inventive over the prior art and should be allowed.

Claim 16 defines a graphics de-compressor, comprising: a receiver for reception of *arbitrary* graphical data, *analyzed into constituent geometrical parts*, where at least some of the constituent geometric parts comprise predetermined shapes and forms, and described in a functional form, a geometry evaluator, following the receiver, for evaluation of the graphical data in respect of a predetermined set of shapes and forms stored at the de-compressor, and a piecewise linear surface approximator following the geometry evaluator, for reconstruction of the evaluated data on a piecewise basis, into geometrical entities.

As define in this claim, the present invention discloses a graphics de-compressor, comprising a receiver for reception of the compressed *arbitrary* graphical data that is graphical data that is not limited to a predetermined set of parts, which was analyzed into constituent geometrical parts, where at least some of the parts are predetermined.

As described above for claim 1, Simon U.S. Patent No. 6,320,595 does not disclose or even hint at the idea of a graphics decomposer for decompressing *arbitrary* graphical data - data which is not limited to a predefined set of graphical parts, which is compressed by analysis and procedural description as taught by the present invention.

Deering U.S. Patent No. 6,525,722 and Kono US Patent No. 4,772,947 also fail short of teaching or even hinting at such decompressing of *arbitrary* graphical data, compressed by an analysis, as taught by the present invention.

It is thus respectfully believed that claim 16 as previously presented is both novel and inventive over the prior art and should be allowed.

Claim 25 defines an analytic form describer for describing constituent geometrical parts of arbitrary graphical data as an analytic description, the analytic form describer comprising: a register of predetermined shapes and forms , and an analytic form fitter for associating the predetermined shapes and forms with the geometrical parts, the analytic form fitter further comprises functionality for fitting the constituent geometrical parts of arbitrary graphical data with functions selected from a group comprising Bezier freeform functions, B-spline freeform functions, NURBS, piecewise polynomial equations and rational equations.

The present invention as defined in claim 25, teaches the new and inventive idea of an analytic form describer for describing constituent geometrical parts of *arbitrary* graphical data as an analytic description, the analytic form fitter comprising functionality for fitting the constituent geometrical parts of arbitrary graphical data with functions *selected from a group comprising Bezier freeform functions, B-spline freeform functions, NURBS, piecewise polynomial equations and rational equations.*

Neither Simon nor any other prior art cited by the Examiner teaches or even hints at the idea of such a form describer as taught by the present invention.

It is thus respectfully believed that claim 25 as previously presented is both novel and inventive over the prior art and should be allowed.

Claim 28 defines a system for analysis, compression, transmission and decompression of *arbitrary* graphical data, the system comprising: a graphical data-compressor for compression of received, arbitrary graphical data, the graphical data-compressor comprising: an input for reception of arbitrary graphical data, an analyzer, linked to the input, for analysis of the received arbitrary graphical data into constituent geometrical parts, where at least some of the constituent geometric parts comprise predetermined shapes and forms, a describer, linked to the analyzer, for description of the constituent geometrical parts as a procedural description, where the procedural description comprises a high level functional form representing at least one of the constituent geometrical parts, and a transmitter, linked to the analyzer, for transmission of the procedural description over a data link; the system further comprising a graphical data decompressor for decompression of the procedural description into geometric entities, the decompressor comprising:a receiver for reception of the procedural description from the data link, and a geometry evaluator for evaluating the procedural description in terms of high-level functional forms, thereby to decompress the compressed graphical data descriptions.

As described for claim 1, and defined by claim 28, the present invention teaches the novel and inventive idea of a system for analysis, compression, transmission and decompression of *arbitrary* graphical data. That is to say, the present invention teaches a system for the compression and decompression of graphical data which is not limited to a predefined set of graphical parts.

Neither Deering nor Simons discloses or even hints at such a system for analysis, compression, transmission and decompression of *arbitrary* graphical data, as taught by the present invention.

It is thus respectfully believed that claim 28 as previously presented is both novel and inventive over the prior art and should be allowed.

Claim 32 defines a method for compressing arbitrary graphical data, comprising: analyzing the arbitrary graphical data into constituent geometrical parts, where at least some of the constituent geometric parts comprise predetermined shapes and forms, describing the constituent geometrical parts as procedural description of the constituent geometrical parts of the arbitrary graphical data, where the procedural description comprises a high level functional form representing at least one of the constituent geometrical parts, and transmitting the procedural description.

As described for claim 1, and defined by claim 32, the present invention teaches the novel and inventive idea of a method for compression of *arbitrary* graphical data. That is to say, the present invention teaches a method for the compression of graphical data which is not limited to a predefined set of graphical parts.

Neither Deering nor Simons discloses or even hints at such a method for, compression of *arbitrary* graphical data - data which is not limited to a predefined set of graphical parts, as taught by the present invention.

It is thus respectfully believed that claim 32 as previously presented is both novel and inventive over the prior art and should be allowed.

Claim 43 defines a method for decompressing a procedural description of graphical data, the procedural description being in terms of high-level functional forms and associated parameters, the method comprising: evaluating the procedural description in terms of the

plurality of high-level functional forms, the functional forms being *selected from a group comprising: Bezier freeform functions, B-spline freeform functions, NURBS, piecewise polynomial equations and rational equations,*and generating geometric entities using the evaluation where at least some of the geometric entities comprise predetermined shapes and forms.

The present invention as defined in claim 43, teaches the new and inventive idea of a method for decompressing a procedural description of graphical data, the procedural description comprising evaluating the procedural description in terms of the plurality of high-level functional forms, the functional forms being *selected from a group comprising: Bezier freeform functions, B-spline freeform functions, NURBS, piecewise polynomial equations and rational equations.*

Neither Simon nor other prior art, cited by the Examiner teaches or even hints at the idea of such a method as taught by the present invention.

It is thus respectfully believed that claim 43 as previously presented is both novel and inventive over the prior art and should be allowed.

Claim 46 defines a graphical data-compressor for compression of received, *arbitrary* graphical data for subsequent transmission, the graphical data-compressor comprising: an input for reception of the received *arbitrary* graphical data, an analyzer linked to the input and operable for analysis of the received arbitrary graphical data into constituent geometrical parts, where at least some of the constituent geometric parts comprise predetermined shapes and forms, a scene describer, linked to the analyzer for description of the at least some of the constituent geometrical parts as a procedural description of the

received arbitrary graphical data, where the procedural description comprises a high level functional form representing at least one of the constituent geometrical parts, and a geometrical part compressor operatively associated with the scene describer and the analyzer, for reduction of constituent geometric parts not described by the describer, into a reduced quantity of data.

As defined by claim 46, the present invention teaches the novel and inventive idea of a graphical data-compressor for compression of received, *arbitrary* graphical data. That is to say, the present invention teaches a data-compressor for the compression of graphical data which is not limited to a predefined set of graphical parts.

Neither Deering nor Simons discloses or even hints at such data-compressor as taught by the present invention.

It is thus respectfully believed that claim 46 as previously presented is both novel and inventive over the prior art and should be allowed.

CLAIM REJECTIONS – 35 USC § 112

The Examiner rejected claim 50 on grounds of the fact that there is insufficient antecedent basis for the limitation "said object" in this claim.

Claim 50 is now amended so as to include the limitation "said constituent geometric parts", which is based on the antecedent as provided in claim 46, instead of the "said object" limitation.

It is thus respectfully believed that claim 50 should be allowable as both novel and inventive over the prior art.

The remaining claims mentioned in this Office Action are believed to be allowable as being dependent on an allowable main claim.

All of the matters raised by the Examiner have been dealt with and are believed to have been overcome.

In view of the foregoing, it is respectfully submitted that all the claims now pending in the application are allowable.

An early Notice of Allowance is therefore respectfully requested.

Respectfully submitted,

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